

WHAT IS CLAIMED IS:

1. A microscope optical system comprising:  
an objective lens; and  
an intermediate magnification varying part  
5 disposed just after the image side of said objective lens.
2. A microscope optical system according to claim 1, wherein,  
10 said intermediate magnification varying part includes a lens group having a positive refractive power and a lens group having a negative refractive power, and  
in a high magnification variation state, said  
15 lens group having a positive refractive power is disposed just after the image side of the objective lens, while in a low magnification variation state, said lens group having a negative refractive power is disposed just after the image side of the objective  
20 lens.
3. A microscope optical system according to claim 2, wherein said intermediate magnification varying part is constructed in such a way that its  
25 optical system is rotatable with an axis substantially orthogonal to an optical axis being a rotation axis.

4. A microscope optical system according to claim 3, wherein said microscope optical system is provided with a connecting portion on the image side of said intermediate magnification varying part and the microscope optical system can be connected with a body of a microscope by means of said connecting portion.

10 5. A microscope optical system according to claim 1, wherein said intermediate magnification varying part is constructed in such a way that its optical system is rotatable with an axis substantially orthogonal to an optical axis being a rotation axis.

15 6. A microscope optical system according to claim 1, wherein said microscope optical system is provided with a connecting portion on the image side of said intermediate magnification varying part and the microscope optical system can be connected with a body of a microscope by means of said connecting portion.

20 7. A microscope optical system according to claim 2, wherein a magnification in said high magnification variation state is  $\alpha$  and a

magnification in said low magnification variation state is  $1/\alpha$ .

8. A microscope optical system according to  
5 claim 4, wherein said magnification  $\alpha$  satisfies  $1.25 \leq \alpha \leq 2.5$ .

9. A microscope optical system according to  
10 claim 2, wherein said microscope optical system is provided with a connecting portion on the image side of said intermediate magnification varying part and the microscope optical system can be connected with a body of a microscope by means of said connecting portion.

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10. A microscope optical system according to claim 7, wherein said microscope optical system is provided with a connecting portion on the image side of said intermediate magnification varying part and  
20 the microscope optical system can be connected with a body of a microscope by means of said connecting portion.

11. A microscope optical system according to  
25 claim 8, wherein said microscope optical system is provided with a connecting portion on the image side of said intermediate magnification varying part and

the microscope optical system can be connected with a body of a microscope by means of said connecting portion.

5           12. A microscope objective lens comprising, in the following order from the object side, a first lens group and a second lens group, wherein:

          said first lens group includes a positive meniscus lens with the concave surface facing the  
10       object side and one or more cemented lenses, said first lens group having a positive refractive power as a whole;

          at least one of said cemented lenses includes a lens made of a material having an Abbe's number equal  
15       to or larger than 80; and

          the following conditions are satisfied:

$$0.3 \leq wd/f \leq 0.45$$

$$0.6 \leq NA$$

          where, f represents the focal length of said  
20       microscope objective lens as a whole, wd represents the working distance of said microscope objective lens, and NA represents the numerical aperture of said microscope objective lens.

25           13. A microscope objective lens according to claim 12, wherein said microscope objective lens has a magnification of 20x.

14. A microscope objective lens according to claim 13, wherein at least one of said cemented lenses comprises a cemented lens composed of three  
5 lens elements.

15. A microscope objective lens according to claim 14, wherein said lens made of a material having an Abbe's number equal to or larger than 80 is made  
10 of fluorite.

16. A microscope objective lens according to claim 12, wherein at least one of said cemented lenses comprises a cemented lens composed of three  
15 lens elements.

17. A microscope objective lens according to claim 16, wherein said lens made of a material having an Abbe's number equal to or larger than 80 is made  
20 of fluorite.

18. A microscope objective lens according to claim 13, wherein said lens made of a material having an Abbe's number equal to or larger than 80 is made  
25 of fluorite.